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To: "Eric Pastor" <eric.pastor@pbwllc.com>
Cc: Barbara Nann/R6/USEPA/US@EPA, Dipanjana Bhattacharya/R6/USEPA/US@EPA, Kevin Shade/R6/USEPA/US@EPA, "Voskov, Luda" <LVOSKOV@tceq.state.tx.us>
Date: 09/17/2010 10:25 AM
Subject: Re: Gulfco BERA Update

Eric,

Thanks for the update; the approach you proposed in your 9/15/10 email below for the submittals is acceptable and is approved. Regarding the response to Susan's comments, the information provided does adequately address the comments and is also approved.

Thanks,

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From: "Eric Pastor" <eric.pastor@pbwllc.com>
To: "Miller, Gary " <miller.garyg@epa.gov>
Cc: "Voskov, Luda" <LVOSKOV@tceq.state.tx.us>
Date: 09/15/2010 04:16 PM
Subject: Gulfco BERA Update

Hi Gary –

As a follow-up to the voice mail I left you on Monday, here is a BERA status update, now that we have completed all field activities.

As I mentioned in my voice mail, when Benchmark remobilized to recollect the pore water sample from EWSED04PW for PAH analyses per our previous conversations, field conditions had changed due to rainfall and unusually high tides. As a result, Benchmark was able to collect some of the pore water and surface water samples that previously could not be collected. Those samples were collected as follows:

Pore Water

- Last Thursday (Sept 9th) pore water sample EWSED03PW was collected and processed.
- Last Friday (Sept 10) pore water sample EWSED09PW was collected and processed.
- This Monday (Sept 13) pore water sample EWSED04PW was collected and processed. (This is the resampled location described above)
- Pore water still could not be collected from EWSED05PW (This was the only pore water sample that could not be collected).

Surface Water

- Yesterday (Sept 14) surface water sample EWSW03 was collected.
- Surface water sample location EWSW02 is dry and was not sampled (This is the only surface water sample that could not be collected).

All of these samples have been shipped to the laboratories. The analytical laboratory (Columbia) has reviewed their turn around times for these samples. The salinity in the waters requires a complex extraction method (reductive precipitation) and Columbia has indicated that they may not be able to complete the COPEC analyses of these water samples by October 4th (the 60-day deliverable due date). Toxicity testing performed on these samples by PBS&J will be completed by that time.

As I indicated in my voice mail, we are not confident that validated COPEC data will be available for the water samples collected over the last few days (listed above) by Oct 4th. As I proposed in my voice mail message to you on Monday, our plan is to send you the 60-day deliverable components for the other BERA samples, as well as available information for these surface water samples, on Oct. 4. We will send any missing information as soon as it is available and will submit the draft PSCR to you within the required timeframe of 30 days after October 4th (so by November 3rd). Please let me know if you have any comments, questions, or concerns with that plan.

Also, to respond to Susan Roddy's comments regarding our proposed BERA modifications and rationale as described in my September 3 e-mail that was subsequently approved by you, below is a revised version of those modification descriptions that incorporates Susan's comments.

Proposed BERA Modifications

1. North Area Soils - Conducting 28-day earthworm (*Eisenia fetida*) chronic bioassays per the BERA Work Plan & Sampling and Analysis Plan is problematic given significantly elevated salinity levels in the six (6) site and three (3) reference/background sample locations. When the earthworms were introduced to the sediments there was an immediate avoidance reaction followed by acute mortality in all of the site and reference samples. The elevated salinity levels are believed due to frequent inundation with estuarine water during high water events related to storm events. Also, much of the soil/sediment was originally dredge spoils used as fill material. As an alternative to the earthworm bioassays, we are proposing to treat the nine (9) soil samples from this transitional area as sediment by adding synthetic seawater, and exposing the previously identified polychaete *Neanthes arenaceodentata* over a 21-day test duration (growth and survival endpoints). According to NOAA's 2003 Bioassessment Manual, the survival and growth endpoints "are about equal sensitivity" for *Neanthes arenaceodentata* (page 8-8). For the synthetic seawater, PBS&J (toxicity laboratory) uses hw-Marinemix®, a commercial product which the lab has experience with and considers to be of consistently good quality. Polychaetes are more taxonomically similar to earthworms than amphipods such as *Leptocheirus plumulosus* and are members of the "sediment ingesting invertebrate" feeding guild that the earthworm was chosen to represent. The proposed 21-day test duration is conservative given the ephemeral nature of the inundation events. PBS&J began the process of preparing the soil samples for *Neanthes* testing following the call on September 3, because there was a sufficient amount of the original sample material already in the lab. The test organisms were ordered from the supplier and were delivered to PBS&J on September 9. The test will conclude on Friday Oct 1st. It may therefore only be possible to submit the statistical summary of this test to the EPA within the 60-day BERA deliverable deadline on Oct 4th.

2. Wetland Surface Water - Similar to the North Area soils, elevated salinity levels are also a concern for surface water samples EWSW01 and EWSW04 (40‰ and 38‰, respectively), which would likely result in significant stress to the existing test organisms, mysid shrimp (*Mysidopsis bahia*). The elevated salinity levels are indicative of a salt panne, a shallow depression that retains sea water for very short periods of time such that salt accumulates to high levels over multiple tidal cycles. Therefore, we are proposing to conduct bioassays on the brine shrimp (*Artemia nauplii*), which are better suited for high salinities. Brine shrimp are adapted to salinity, desiccation, and temperature stress; therefore, these variables would not be expected to confound the testing of the effect of the COPECs. Since there are no standard methods for testing chronic exposures to brine shrimp, PBS&J is developing an SOP for conducting 96-hour

acute tests (survival endpoint) by referencing standard procedures for determining toxicity from produced (oilfield) waters. This shortened test protocol (from 7 days to 96 hours) more matches the reality of the ephemeral nature of the ponds.

3. Wetland Sediment Pore Water - The pore water sample EWSED04 collected for PAH analysis is not available for testing due to a laboratory error by Columbia Analytical Services. Benchmark Ecological Services remobilized to the site to collect this pore water sample. They also evaluated whether sufficient pore water was present at EWSED03, EWSED05, and EWSED09 (as well as sufficient surface water from EWSW02 and EWSW03). All of these samples, except for EWSED05PW and EWSW02 were collected. Sampling took place the morning(s) of September 13 for EWSED04 pore water. Columbia laboratory is committed to expediting the analysis of PAHs due to this being their error with the analysis.

Reference:

MacDonald, D.A., M.B. Matta, L.J. Field, C. Cairncross and M.D. Munn. 2003. The Coastal Resource Coordinator's Bioassessment Manual. Report No. HAZMAT 93-1 (revised). Seattle, WA. National Oceanic and Atmospheric Administration. 160 pp + appendices.

Please let me know if this provides the information Susan was looking for or if we missed something.

Thanks.

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